
National Health Interview Survey Data on Adult Knowledge of AIDS in the United States

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Synopsis

Information collected with the 1989 National Health Interview Survey of AIDS Knowledge and Attitudes from a nationally representative sample of 40,609 adults was examined to determine how knowledge about AIDS varied within demographic subgroups of the population.

Most adults (83 percent) had seen or heard public service announcements about AIDS in the month prior to interview, and 51 percent had read an AIDS brochure in the past. Sixty-seven percent of adults responded correctly to at least 10 of 14 general AIDS knowledge questions. Knowledge levels were higher

among those who were more educated and those who had seen or heard public service announcements or had read brochures. White adults responded correctly to these questions more often than their black counterparts; non-Hispanics responded correctly more often than Hispanics (for statistical purposes, the population is divided twice, in the first instance racially and in the second, ethnically—white and black, Hispanic and non-Hispanic). Even with relatively high information levels, misperceptions about casual transmission persisted, with one-third of adults answering more than half of the questions about casual transmission incorrectly. The same population groups that had less general AIDS knowledge had more misperceptions about transmission. More than 80 percent of adults recognized that use of condoms and a monogamous relationship between two uninfected persons were effective means of preventing the spread of the AIDS virus. Seventy-four percent of adults had heard of the HIV antibody test.

The data demonstrate that while awareness about AIDS in general is high, certain population subgroups have more limited knowledge and more inappropriate concerns about AIDS, particularly those in certain racial-ethnic minorities and those less educated than the general population. Efforts must continue to develop culturally sensitive and easily understood educational programs and evaluation mechanisms for these programs

AS OF MAY 31, 1990, a total of 136,204 cases of acquired immunodeficiency syndrome (AIDS), resulting in 83,145 deaths had been reported to the Centers for Disease Control (CDC) since 1981 (1). In addition, CDC estimates that 1–1.5 million persons are infected with the human immunodeficiency virus (HIV) that causes AIDS (2). While several drugs to treat AIDS are being evaluated, and efforts are underway to find a safe and efficacious vaccine, control of the epidemic at present remains dependent upon educating people on ways to avoid becoming infected. For those persons who are at very low risk of acquiring HIV infection, information is needed to prevent unnecessary fear. In order to target these educational programs effectively, some idea of the level of knowledge about AIDS in various population groups is needed.

Since August 1987, the National Center for Health Statistics (NCHS) has been collecting information on AIDS knowledge and attitudes among adults in the United States through a special supplement to the National Health Interview Survey (NHIS). Provisional

results have been disseminated on a regular basis in Advance Data from Vital and Health Statistics, numbers 146–151, 153, 160, 161, 163, 164, 167, and 175. This report will summarize selected results from 1989, with particular emphasis on demographic factors associated with knowledge levels and areas where there is still misinformation.

Methods

The NHIS is a cross-sectional household survey of the United States civilian, noninstitutionalized population that has been conducted annually since 1957. Each year, personnel of the U.S. Bureau of the Census interview members of 40,000–50,000 households. In addition to basic health information that is collected every year, special health topics, which change annually, also are included.

The first AIDS supplement to the NHIS was used from August through December 1987. The questionnaire was then revised and data collection with the new

Table 1. Percentage of adults answering correctly NHIS statements used to assess AIDS knowledge, United States, 1989

Statements	Correct responses	Percent of adults responding correctly
AIDS can reduce the body's natural protection against disease.....	true ¹	74.5
AIDS is especially common in older people.....	false ²	75.0
AIDS can damage the brain.....	true	26.5
AIDS is an infectious disease caused by a virus.....	true	63.2
Teenagers cannot get AIDS.....	false	93.1
AIDS leads to death.....	true	84.8
A person can be infected with the AIDS virus and not have the disease AIDS.....	true	57.1
Looking at a person is enough to tell if he or she has the AIDS virus.....	false	69.8
Any person with the AIDS virus can pass it on to someone else during sexual intercourse.....	true	83.0
A person who has the AIDS virus can look and feel healthy.....	true	49.1
A pregnant woman who has the AIDS virus can give the virus to her baby.....	true	80.9
There is a vaccine available to the public that protects a person from getting the AIDS virus.....	false	74.4
There is no cure for AIDS at present.....	true	85.3
How likely do you think it is that a person will get the AIDS virus from sharing needles for drug use with someone who has AIDS?.....	very	94.5

¹In every case, absolutely correct answer was "definitely true."

²In every case, absolutely correct answer was "definitely false."

NOTE: NHIS = National Health Interview Survey.

questionnaire began in May 1988 and continued throughout 1989. The AIDS questionnaires were designed to estimate public knowledge and attitudes about AIDS, HIV transmission, and prevention of HIV infection. The questions were asked of a single, randomly selected adult 18 years or older in each family included in the NHIS. In this report, for statistical purposes, the population was divided twice, in the first instance, racially and in the second ethnically—white and black, Hispanic and non-Hispanic.

This report summarizes data from 40,609 persons interviewed from January through December 1989. The data were weighted to provide national estimates but are provisional because the 1989 AIDS interviews were processed separately from the main NHIS interviews to expedite the release of AIDS data. They have not been merged yet with the rest of the NHIS data. These provisional estimates should differ only slightly from estimates obtained from the final 1989 data file. Standard errors for these estimates are also provisional. They

Table 2. Percentage of adults responding correctly to NHIS questions used to assess misperceptions about AIDS transmission, United States, 1989

How likely do you think it is that a person will get the AIDS virus from:	Percent of adults answering correctly ¹
Living near a hospital or home for AIDS patients?.....	83.1
Working near someone with AIDS?.....	70.8
Eating in a restaurant where the cook has AIDS?.....	49.1
Shaking hands, touching, or kissing on the cheek someone who has AIDS?.....	73.2
Sharing plates, forks, or glasses with someone who has AIDS?.....	47.3
Using public toilets?.....	60.3
Being coughed or sneezed on by someone who has AIDS?.....	44.7
Attending school with a child who has AIDS?.....	76.3
Mosquitoes or other insects?.....	42.8

¹Correct answer is either "definitely not possible" or "very unlikely."

were achieved by applying a design effect of 1.3 to the standard errors obtained by assuming a simple random sample. On the basis of these provisional estimates of variance, all differences noted in this report are significant at the 0.05 level.

The 1989 NHIS AIDS supplement contained 14 statements which were used in this report to assess general AIDS knowledge. The number of correct responses to these 14 statements was totalled for each person to produce a general AIDS "knowledge score" that could range from 0 to 14, with higher scores indicating more questions answered correctly. Table 1 lists the 14 statements, the responses considered correct, and the percent of adults responding correctly to each.

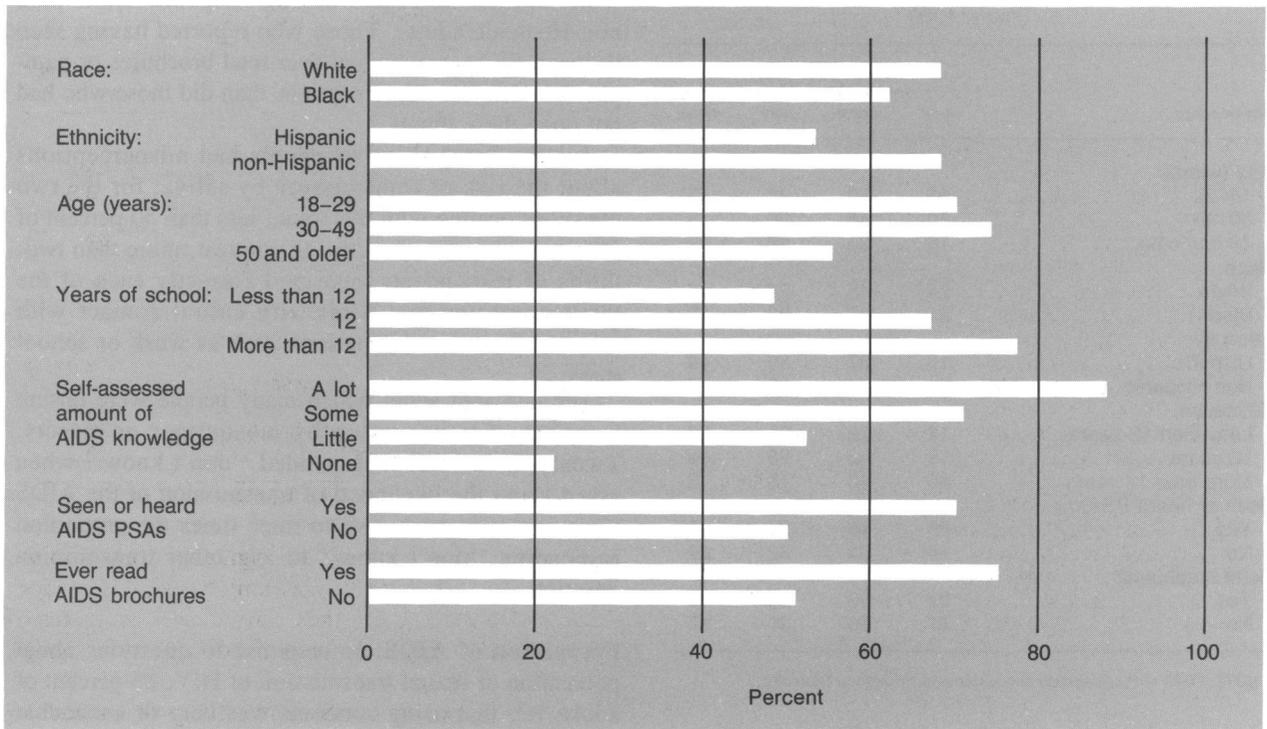
Nine questions were used to assess misperceptions about AIDS-HIV transmission (table 2). For this measure, the number of incorrect responses was totalled for each person to yield an AIDS misperception score. This score could range from 0 to 9, with a high score indicating more inappropriate concerns about transmission of HIV through casual contact.

In the NHIS AIDS questionnaire, the term "AIDS virus" was used instead of HIV because it was felt to be more readily understood. However, in this report the terms are used interchangeably.

Results

Sources of information about AIDS. In 1989, 83 percent of adults in the United States had seen public service announcements (PSAs) about AIDS on television or heard PSAs on the radio in the previous month. The proportion seeing or hearing PSAs was higher among those with 12 or more years of school (82 percent) when compared with those with less than 12 years (73 percent). There were no differences by race, Hispanic

Figure 1. Percentages of adults responding correctly to at least 10 of 14 general AIDS knowledge statements, by selected characteristics, United States, 1989



NOTE: PSAs = public service announcements.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 1989

ethnicity, or sex in the proportion of who saw PSAs on television. For PSAs on the radio, however, 51 percent of black adults had heard PSAs compared with 44 percent of white and 50 percent of Hispanics heard them compared with 44 percent of non-Hispanics. Men were more likely to have heard radio PSAs (49 percent compared with 40 percent for women).

Fifty-one percent of adults had read brochures or pamphlets about AIDS in the past. The proportion reading brochures or pamphlets increased with education. Women were more likely than men to have ever read brochures (54 versus 49 percent); those less than 50 years of age were more likely than older people to have read such material (59 percent compared with 38 percent).

Self-assessed levels of knowledge about AIDS.

Twenty-three percent of adults said they knew a lot about AIDS, 44 percent said they knew some, 25 percent claimed to know a little, and 8 percent stated that they knew nothing. The proportion who felt they knew a lot about AIDS increased by education and also varied by age and race (table 3). People in the 30-49 age group more often reported knowing a lot than did younger or older persons. White adults were more likely than black to report at least some knowledge and non-Hispanics more likely than Hispanics.

General AIDS knowledge. The mean knowledge score for all adults was 10.1 out of a possible maximum score of 14. Sixty-seven percent of adults received a general knowledge score of 10 or better. Figure 1 shows the proportion with scores of at least 10 in various population groups. As measured by the general knowledge statements included in the NHIS, self-assessed levels of knowledge were reflective of actual levels. The proportion with 10 or more correct responses was higher among white than black adults and higher among non-Hispanics than Hispanics. These differences remained even after stratifying by years of education. The proportion also increased with education and was higher among those in the 30-49 age group than in those who were older or younger. Those who reported seeing or hearing PSAs and those who had ever read brochures or pamphlets about AIDS were more knowledgeable than those who had not seen, heard, or read such information.

The question with the lowest proportion of correct responses dealt with the pathophysiology of AIDS. Only 26 percent knew that the AIDS virus can damage the brain (table 1).

Misperceptions about transmission of AIDS. The mean misperception score for all adults was 3.5 out of a possible score of 9; 33 percent had scores of 5 or higher

Table 3. Percentages of adults reporting various amounts of knowledge about AIDS, by population characteristics, United States, 1989

Characteristic	Amount of knowledge			
	A lot	Some	Little	None
Age (years):				
18-29	25	50	23	3
30-49	30	48	20	3
49 and older	16	35	33	17
Race:				
White	24	45	24	7
Black	21	37	28	13
Ethnicity:				
Hispanic	19	37	30	14
Non-Hispanic	24	44	25	7
Education:				
Less than 12 years	12	29	36	23
12 years	19	48	28	5
More than 12 years	35	48	15	2
Seen or heard PSAs:				
Yes	25	46	24	5
No	14	34	32	20
Read brochures:				
Yes	27	50	20	3
No	11	36	36	17

NOTE: PSAs = Public service announcements on radio or television.

Table 4. Percentage of adults reporting effectiveness of two methods of AIDS prevention, by population characteristics, United States, 1989

Characteristic	Condoms			Monogamy ¹		
	Very	Somewhat	None	Very	Somewhat	None
Age (years):						
18-29	39	52	4	84	9	3
30-49	35	54	5	87	7	2
Older than 49	24	51	6	77	8	2
Race:						
White	32	55	5	85	7	2
Black	32	47	7	73	12	4
Ethnicity:						
Hispanic	30	48	8	79	9	3
Non-Hispanic	32	53	5	84	8	2
Education:						
Less than 12 years ..	24	45	8	71	10	4
12 years	31	54	6	84	8	2
More than 12 years ..	38	55	3	89	7	1
Seen or heard PSAs:						
Yes	34	53	5	86	7	2
No	24	48	8	71	11	3
Read brochures:						
Yes	35	56	4	88	7	2
No	27	48	7	76	9	3

¹Two uninfected people having sex only with each other.

NOTE: PSAs = public service announcements.

(figure 2). Misperceptions varied by many of the same factors as general knowledge. Self-assessed levels of AIDS knowledge were also reflective of what persons knew about transmission. The proportion with misperception scores of 5 or higher decreased with increasing

education and was higher among black adults than white adults and higher among Hispanic adults than non-Hispanic adults. Those who reported having seen or heard PSAs or who had ever read brochures or pamphlets had fewer misperceptions than did those who had not done these things.

A larger proportion of people had misperceptions about the risk of transmission by saliva; for the two questions dealing with this topic, less than 50 percent of persons answered correctly. In contrast, more than two-thirds of respondents answered correctly each of the three questions that dealt with casual contact with infected persons in situations such as work or school (table 2).

The one area about which many people were unsure was that of transmission by mosquitoes or insects. Twenty-three percent responded "don't know" when asked about the likelihood of transmission of the AIDS virus in this manner, two to three times the proportion responding "don't know" to any other transmission question.

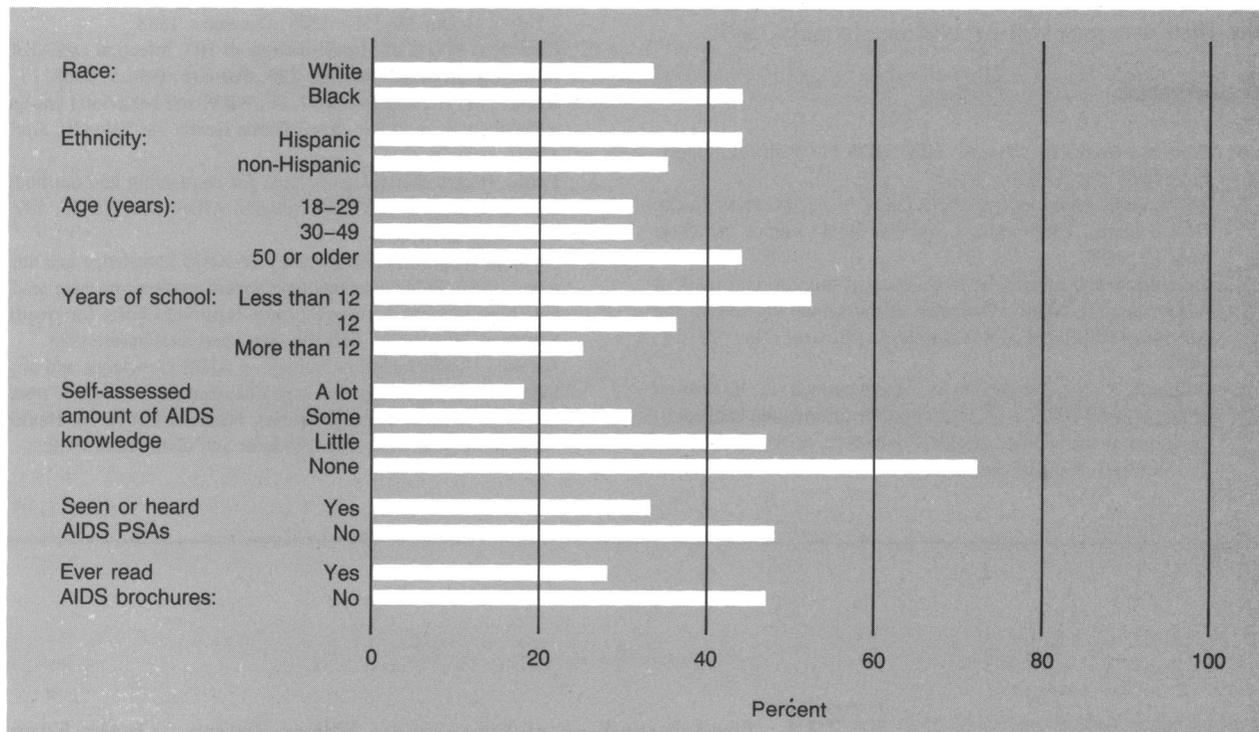
Prevention of AIDS. In response to questions about prevention of sexual transmission of HIV, 85 percent of adults felt that using condoms was very or somewhat effective and 83 percent felt that a monogamous relationship between two uninfected persons was very effective. For both methods, the proportion who rated them as effective was lower among those with less than 12 years of school compared with those with 12 or more years (table 4). Black and Hispanic adults were somewhat less likely to rate these methods as effective than white and non-Hispanic adults. Those who had been exposed to AIDS information through PSAs or brochures and pamphlets were more likely to view these methods as effective than persons who had not received such information.

Overall, 74 percent of adults were aware of the HIV antibody test. Groups with lower levels of awareness included black adults (65 percent), Hispanic adults (63 percent), persons 50 years and older (60 percent), those with less than 12 years of school (54 percent), and those who reported knowing nothing about AIDS (29 percent).

Discussion

An effective educational program is obviously a crucial part of the public health response to AIDS. The information from the NHIS AIDS survey has been useful in guiding these educational efforts and evaluating the effectiveness of specific campaigns such as the "Understanding AIDS" brochure developed by CDC which was mailed to every household in the United States in the spring of 1988 (3, 4). From our data, it is

Figure 2. Percentages of adults responding incorrectly to at least 5 of 9 AIDS transmission questions, by selected characteristics, United States, 1989



NOTE: PSAs = public service announcements.

SOURCE: National Center for Health Statistics, National Health Interview Survey, 1989.

apparent that many adults in the United States have seen or heard PSAs or have read brochures or pamphlets about AIDS. These people were more knowledgeable and had fewer misperceptions than those who had not been exposed to such information, suggesting that these efforts have met with success. The characteristics of those who use these various information sources should be accommodated in the development of future PSAs and educational material to increase their effectiveness.

In 1989, adults in the United States exhibited a relatively high degree of awareness about AIDS. Certain population subgroups, however, had more limited knowledge of AIDS. They included older persons, racial-ethnic minorities, and those with less than a high school education. The lower level of knowledge among black and Hispanic adults is of particular concern, because they are at increased risk of acquiring AIDS (5). Programs must continue to be developed that will be accepted and understood by them.

Efforts have been made to educate people about the various modes of HIV transmission and about the lack of transmission through casual contact. Again, the levels of misperception about transmission varied within population groups. The same groups that had less general knowledge about AIDS also had more inappropriate concerns about transmission through casual contact.

In addition to improving the AIDS knowledge base of these groups, educational efforts must also continue to address these misperceptions. For the adult population as a whole, there remained a high level of concern about transmission by saliva and uncertainty about insect transmission. General educational programs should continue to emphasize the strong evidence against the spread of HIV by saliva and insects (6).

Most people were aware of the sexual, parenteral, and perinatal transmission of HIV and of the effectiveness of condoms and mutual monogamy between seronegative persons in preventing transmission. How this knowledge relates to individual behavior is unknown. Most models of behavioral change, however, stress the need for accurate knowledge before desired changes can occur (7).

Testing for antibodies to HIV and counseling are viewed as important components of the AIDS prevention effort (8). NHIS data indicate that while general awareness of the test is high, it remains somewhat lower in certain important population groups such as minorities. Efforts should be made to help increase the awareness of HIV antibody testing, and this may increase the use of voluntary counseling and testing programs.

The NHIS AIDS survey will continue to monitor knowledge and attitudes about AIDS and AIDS preven-

